Claims

1) A tubing assembly and inspection apparatus comprising:

a table having a planar table surface;

a plurality of tubing support fixtures mounted on the table surface, each support fixture being adapted to support a length of tubing, each support fixture having a motive source supporting the support fixture on the table surface for movement of the support fixture over the table surface; and

a control system communicating with each of the support fixtures for controlling movement of the support fixtures over the table surface to predetermined locations of the support fixtures on the table surface.

2) The apparatus of Claim 1, further comprising:

the motive source of each support fixture supporting the support fixture for movement on the table surface in mutually perpendicular directions over the table surface.

3) The apparatus of Claim 2, further comprising:

each support fixture having a tubing holder that is rotatable relative to the table surface.

4) The apparatus of Claim 3, further comprising:

the tubing holder being operable to selectively grip and release a length of tubing positioned on the tubing holder.

5) The apparatus of Claim 3, further comprising:

each support fixture having an actuator operatively connected to the tubing holder for moving the tubing holder relative to the support fixture.

6) The apparatus of Claim 5, further compromising:

the at least one actuator being operatively connected to the tubing holder to pivot the tubing holder about two, mutually perpendicular axes.

7) The apparatus of Claim 5, further comprising:

the at least one actuator being operatively connected to the tubing holder to move the tubing holder upwardly and downwardly relative to the table surface.

8) The apparatus of Claim 1, further comprising:

the table surface having an area that is defined by mutually perpendicular X and Y axes of the table surface, the X axis having X coordinate locations spacially arranged along the X axis and the Y axis having Y coordinate locations spacially arranged along the Y axis, the X coordinate locations and the Y coordinate locations defining a grid of X and Y coordinate locations on the table surface; and

the grid of X and Y coordinate locations being recorded in the control system whereby the control system controls movement of the support fixtures over the table surface to predetermined X and Y coordinate locations on the table surface.

9) The apparatus of Claim 8, further comprising:

the planar table surface defining a Z axis of each support fixture that is perpendicular to the table surface and to the X and Y axes; and

the control system controlling movement of each support fixture on the table surface for rotation of the support fixture about the Z axis.

10) A tubing assembly and inspection apparatus comprising:

a plurality of separate tables, each table having a planar table surface;

at least one tubing support fixture mounted on each table surface, each support fixture being adapted to support a length of tubing, and each support fixture having a motive source supporting the support fixture on the table surface for movement of the support fixture over the table surface.

11) The apparatus of Claim 10, further comprising:

the plurality of tables being removably interconnected.

12) The apparatus of Claim 10, further comprising:

a control system communicating with each of the support fixtures on each of the table surfaces for controlling movements of the support fixtures over the table surfaces.

13) The apparatus of Claim 10, further comprising:

a plurality of support fixtures mounted on each table surface.

14) The apparatus of Claim 10, further comprising:

the motive source of each support fixture on each table surface supporting the support fixture for movement on the table surface in mutually perpendicular directions over the table surface.

15) The apparatus of Claim 10, further comprising:

each support fixture on each table surface having a tubing holder that is rotatable relative to the table surface.

16) The apparatus of Claim 10, further comprising:

each support fixture on each table surface having a tubing holder that is operable to selectively grip and release a length of tubing positioned on the tubing holder.

17) The apparatus of Claim 15, further comprising:

each support fixture on each table surface having an actuator operatively connected to the tubing holder for movement of the tubing holder relative to the table surface.

18) The apparatus of Claim 17, further comprising:

the actuator being operable to pivot the tubing holder about two mutually perpendicular axes.

19) The apparatus of Claim 17, further comprising:

the actuator being operable to move the tubing holder upwardly and downwardly relative to the table surface.

20) A method of assembling and inspecting tubing, the method comprising:

providing a table with a planar table surface;

providing a plurality of tubing support fixtures on the table surface with each support fixture being adapted to support a length of tubing and each support fixture having a motive source that is operable to move the support fixture over the table surface;

operating the motive source of each support fixture to move each support fixture to a predetermined location on the table surface; and

positioning a length of tubing on each support fixture.

21) The method of Claim 20, further comprising:

providing a control system and communicating the control system with each of the support fixtures; and,

controlling movements of the support fixtures on the table surface by the control system.

22) The method of Claim 21, further comprising:

providing a tubing holder on each support fixture and moving the tubing holder relative to the table surface by the control system.

23) The method of Claim 21, further comprising:

defining an area of the table surface with mutually perpendicular X and Y axes of the table surface;

spacially assigning X coordinate locations along the X axis and spacially assigning Y coordinate locations along the Y axis;

defining a grid of X and Y coordinate locations on the table surface; and,

using the grid of X and Y coordinate locations in the control system to control movements of the support fixtures over the table surface to predetermined X and Y coordinate locations on the table surface.

24) The method of Claim 23, further comprising:

using the control system to control rotation of the support fixtures on the table surface around a Z axis of each support fixture that is perpendicular to the X and Y axes.

25) The method of Claim 20, further comprising:

securing together lengths of tubing positioned on the support fixtures.